REMARKS

Examiner Dang is thanked for his thorough examination of the Subject Patent Application. It is strongly felt the Independent Claims 1 and 16 have previously been amended and in so doing clearly show distinction from Examiners cited prior art or a combination of the same prior art.. Amended Claim 1 now describes a conductive layer, an overlying amorphous silicon layer, and a metal layer all being **formed of a single material.** However the previously amended independent Claim 1 also described an amorphous silicon layer (to be used as the source material for a subsequent metal silicide structure, formed **immediately after formation, and residing directly on** the underlying first metal or first conductive layer, **(wherein tis first metal layer is used for the conductive gate structure onluy) ,thus precluding the use or fromation of any intervening material** such as layer 206 in the Bai et al prior art. The Bai prior art uses layer 206 as a stop layer to prevent silicide formation from attacking or consuming the critical gate electrode structure 204. It also remains as a component of the Bai structure, see fig. 2c. Applicant also does not want to attack or consume the critical gate material layer 3a, but forms the silicon layer to be consumed in a subsequent metal silicide formation, without the safety net or barrier layer 206 that Bai needs. In addition applicants layer 4a or 4b is totally consumed during silicide formation resulting in metal silicide structure 10c, directly on conductive metal gate structure 3b, while the Bai prior art not only employs the safety net layer 206 but leaves this layer unremoved and part of the final structure. Surely this clearly differentiates applicant's invention from the Bai et al art. Therefore reconsideration of independent Claim 1 as well as all referencing dependent Claims 2 - 12 and 14 -16, rejected under

35 USC 103(a) as being unpatentable over Bai et al, (US 5,818,092), in view of Despande et al, (6,512,266 B1), is requested. Again the Bai inclusion of layer 206, is used to guard against possible deleterious attack of the critical gate structure 204 during silicide formation. Applicant's process however is designed to function without the intervening barrier layer of the Bai safety net without attack of the underling, critical gate structure.

It is critical to note that Examiner's stating of layer 206 as a conductive layer and immediately covered by amorphous layer 208 is <u>not the same as applicants conductive gate layer 3a, or conductive gate structure 3b, residing directly on an underlying gate insulator layer than immediately covered by the consumable amoprhous silicon layer.</u> Examiner is confusing the Bai non- gate conductive structure 206, with layer 204 which is actually Bai's conductive gate structure. It is felt that this confusion is leading to Examiners rejections and so it is once again requested that Examiner study this concept, (Bai using metal silicide layer 208 on conductive **non**-gate layer 206, (not used as the gate structure), whereas layer 204 is the gate conductive structure, compared to applicants use of an amorphous silicon layer 4b directly on conductive gate structure 3b). Therefore we are prepared to continue to argue these unique differences in a future responses or appeals if necessary.

Regarding the rejection of independent Claim 16, and referencing dependent Claims 17 - 28, and 31, rejected under 35 USC 103(1) as being unpatentable under Bai taken with Despande as applied to Claims 1- 6, 9 - 12, and 14 above, and further in view of Wieczorek et al, again the prior art of Bai et al do not form **an amorphous silicon shape, (formed of a single**

material) formed directly on underlying conductive GATE shape (also formed of a single material) which in turn directly overlays a gate insulator layer, wherein an amorphous silicon layer used to form the amorphous silicon shape is immediately formed (without any interceding steps) on an underlying metal layer and where the amorphous silicon shape is totally consumed during salicide formation. (Again Examiner is comparing the Bai layer 206 to applicants gate sturure 3b. Bai's structure is metal silicide 220, (fig 2c), on non-gate layer 206, which in turn is on conductive gate structure 204, whereas applicants metal silicide layer 4b is directly on conductive gate structure 3b. The process to obtain the above two structures is different and therefore applicants process is unique when compared to the Bai prior art and should be allowed). The safety layer or safety net that the Bai prior art needs to protect the critical gate structure from attack during subsequent metal silicide formation is not needed in applicants **unique and different process.** The unneeded safety net, layer 206 in the Bai prior art, is a costly process step that if it can be avoided reduces the cost and complexity of the process. Indeed applicant's patentable process does just that, allows formation of a metal silicide structure directly on an underlying gate structure without employing a layer such as Bai's layer 206, which by the way also remains an unwanted component of the Bai structure. Therefore reconsideration of independent Claim 16 as well as all referencing dependent Claims 17 - 28, and 31, rejected under 35 USC 103(a) as being unpatentable over Bai et al, (US 5,818,092), with Deshpande as applied to Claims 1- 6, 9 - 12, and 14 above, and further in view of Wieczorek is requested. Again the Bai inclusion of layer 206 during the process as well as a component of the final structure, used to guard against possible deleterious attack of the critical gate structure 204

during silicide formation, is not in applicant's invention. Applicant has invented a ***simplified process*** designed to function without the intervening barrier layer of the Bai safety net without attack of the underling, critical gate structure.

Regarding the rejection of Claims 1 - 4, 6 - 7, and 9, under 35 USC 103(a), as being unpatentable over Chau et al (US 5,625,217 B1), in view of Nguyen et al (US 6,084,279), is again addressed in previously amended independent Claim 1. No combination of the above prior art describe **an amorphous silicon shape, (formed of a single material) formed directly on underlying conductive shape to be used as the gate structure, (also formed of a single material) which in turn directly overlays a gate insulator layer, wherein an amorphous silicon layer used to form the amorphous silicon shape is immediately formed (without any interceding steps) on an underlying metal layer and where the amorphous silicon shape is totally consumed during salicide formation.** It is obvious the Chau prior art does not totally consume the amorphous silicon layer overlying a conductive layer, therefore only forming metal silicide on an unconsumed portion of the amorphous silicon layer. Therefore the Chau prior art will not result in the low gate resistance and no polysilicon depletion obtained via applicants process in which all high resistance material is consumed during the silicidation procedure Therefore it is strongly believed that the Chau prior art in combination with the above referencing prior art do not lead to a process sequence in which an amorphous silicon shape, formed directly on an underlying conductive shape to be used as the gate structure, (precluding the use of a insulator barrier layer), is totally consumed during the formation of an metal silicide region directly on an underlying conductive shape. The same arguments are used to overcome

Examiners rejection of independent Claim 16, as well as referencing dependent Claims 17 - 22, 24 - 26 and 28, rejected under 35 USC 103(a) as being unpatentable over Chau taken with Nguyen and Deshpande. It is strongly believed that applicants unique process sequence (described in detail in numerous above paragraphs) can not be obtained by any combination of Examiners prior art. Applicants invention featuring **total** consumption of an amorphous silicon layer to form a metal silicide layer **directly on an underlying conductive gate structure** , without the use of barrier layers, layers such as Bai's layer 206, is unique and a very desirable process and final structure. If this were so obvious as Examiner suggests surely there would be prior art showing this process. The ability to form the metal silicide layer directly on an underlying gate structure, featuring total consumption of the amorphous silicon component used for metal silicide formation, and without the inclusion of a barrier layer, is unique and patentable.

It should again be noted that Examiners continued reference to the Bai prior art is irrelevant since Examiner continues to declare the Bai metal silicide layer 220 directly on an underlying conductive layer 206 to be equivalent to applicants process wherein the metal silicide structure 10c is formed directly on conductive gate structure 3b. Applicants Claim 1 and 16 clearly show the formation of the metal silicide layer directly on **the underlying conductive layer used the gate structure.** Therefore reconsideration of independent Claims 1 and 16 as the referencing dependent claims, rejected based on the Chau prior art is requested.

Therefore it is respectfully suggested that the combinations of these various references cannot be combined without reference to applicant's own invention. None of the applied

references address the problem of forming a silicide layer directly on the underlying layer to be used for definition of the conductive gate structure. The processes of Figs. 1- 8 and Claims 1 - 12, 14 - 28 and 31, are both believed to be novel and patentable over these various references because there is not sufficient basis for concluding that the combination of claimed elements would have been obvious to one skilled in the art. That is to say, there must be something in the prior art or line of reasoning to suggest that the combination of these various references is desirable. We believe that there is no such basis for the combination, We therefore request Examiner Dang to reconsider his rejection in view of these arguments and the amendments to the Claims.

Dependent Claims 13, and 29 - 30, have previously been cancelled.

Allowance of all Claims (1- 12, 14 - 28, 31) is requested.

It is requested that should Examiner Dang not find that the Claims are now Allowable that he call the undersigned attorney at 845-452-5863, to overcome any problems preventing allowance.

Respectfully submitted,

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